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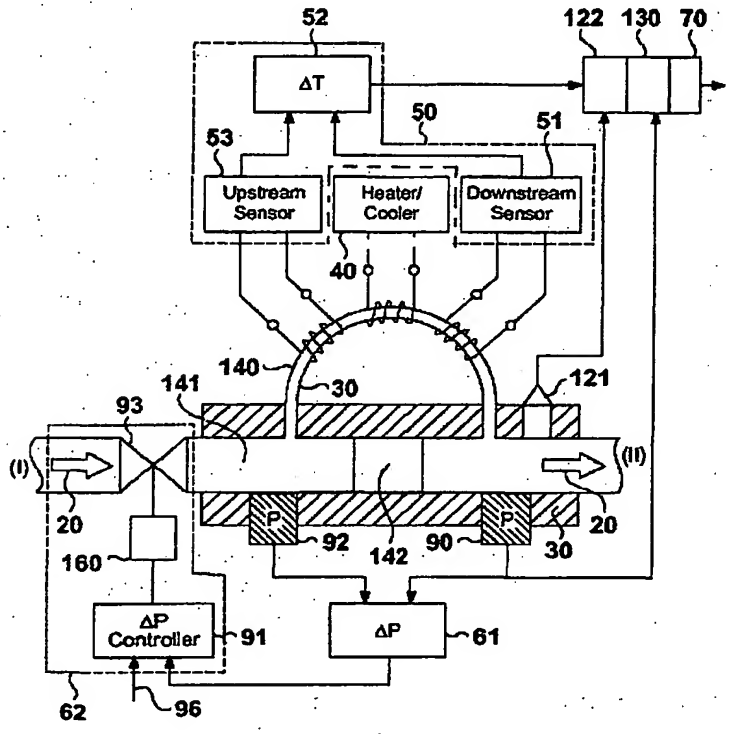
(54) Title: METHOD AND DEVICE FOR DETERMINING A CHARACTERISTIC VALUE THAT IS REPRESENTATIVE OF THE CONDITION OF A GAS



(57) Abstract: The invention relates to a device and methods for the characterisation of a flowing substance, liquid or gas. Particular embodiments of the invention relates to the use of the device for the identification of a flowing substance, for controlling the flow of a fuel or combustion gas to deliver a controlled heat of combustion and for measuring the heat capacity of a gas. Further embodiments of the invention relate to a flow control device for controlling the flow rate of a flowing substance and a method for the combustion of a fuel or combustion gas. The device for the characterisation of a flowing substance comprises: a transport duct on which is mounted a heating or a cooling element; a temperature difference sensor comprising a first temperature measurement cell downstream of the heating or cooling element and means to determine a temperature difference in the flowing substance upstream and downstream of the heating or cooling element; flow control means comprising flow measurement means for measuring a mass flow characteristic and flow correction means for correcting for measured mass flow variations; and evaluation means for evaluating a characterising feature of the flowing substance comprising a function relating temperature differences measured on one or more calibration substances to one or more characterising features of the flowing substance. The device is relatively simple and cheap and gives a quick but accurate and reliable characterisation of a flowing substance, gas or liquid, that can be used in a flow control device to control the flow rate of unknown substances.

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